Complete Summary

GUIDELINE TITLE

ACR Appropriateness Criteria™ for imaging recommendations for patients with Crohn's disease.

BIBLIOGRAPHIC SOURCE(S)

American College of Radiology (ACR), Expert Panel on Gastrointestinal Imaging. Imaging recommendations for patients with Crohn's disease. Reston (VA): American College of Radiology (ACR); 2001. 11 p. (ACR appropriateness criteria). [32 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Crohn's disease (CD)

GUIDELINE CATEGORY

Diagnosis

CLINICAL SPECIALTY

Emergency Medicine
Family Practice
Gastroenterology
Internal Medicine
Pediatrics
Radiology
Surgery

INTENDED USERS

Health Plans
Hospitals
Managed Care Organizations
Physicians
Utilization Management

GUIDELINE OBJECTIVE(S)

To evaluate the appropriateness of initial radiologic examinations for patients with Crohn's disease (CD)

TARGET POPULATION

- Patients with suspected Crohn's disease (CD)
- Patients with known Crohn's disease and acute exacerbation or suspected complications

INTERVENTIONS AND PRACTICES CONSIDERED

1. Colon
    - Air contrast barium enema (ACBE)
    - Colonoscopy
    - Single contrast barium enema
    - Water soluble contrast enema
2. Small bowel
    - Small bowel follow-through (SBFT) with compression
    - Peroral pneumocolon
    - Enteroclysis
3. Plain x-ray
    - Supine and upright abdomen
    - Supine abdomen
4. Computed tomography (CT)
    - Contrast-enhanced computed tomography of abdomen and pelvis (either helical or incremental)
    - Noncontrast computed tomography of abdomen and pelvis (no intravenous [IV], but oral contrast)
5. Ultrasound (US)
    - Abdominal with graded compression
    - Pelvic and endovaginal
    - Color Doppler sonogram
6. Nuclear medicine
    - Technetium-hexamethyl propylene amine oxime (tc-HMPAO) white blood cell (WBC) scan
    - Indium-labeled white blood cell scan
7. Magnetic resonance imaging (MRI) of abdomen and pelvis (+/- Gd enhancement)

MAJOR OUTCOMES CONSIDERED

Utility of radiologic examinations in differential diagnosis

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The guideline developer performed literature searches of recent peer-reviewed medical journals, primarily using the National Library of Medicine´s MEDLINE database. The developer identified and collected the major applicable articles.

NUMBER OF SOURCE DOCUMENTS

The total number of source documents identified as the result of the literature search is not known.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus (Delphi Method)
Weighting According to a Rating Scheme (Scheme Not Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

One or two topic leaders within a panel assume the responsibility of developing an evidence table for each clinical condition, based on analysis of the current literature. These tables serve as a basis for developing a narrative specific to each clinical condition.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus (Delphi)

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Since data available from existing scientific studies are usually insufficient for meta-analysis, broad-based consensus techniques are needed to reach agreement

in the formulation of the Appropriateness Criteria. Serial surveys are conducted by distributing questionnaires to consolidate expert opinions within each panel. These questionnaires are distributed to the participants along with the evidence table and narrative as developed by the topic leader(s). Questionnaires are completed by the participants in their own professional setting without influence of the other members. Voting is conducted using a scoring system from 1-9, indicating the least to the most appropriate imaging examination or therapeutic procedure. The survey results are collected, tabulated in anonymous fashion, and redistributed after each round. A maximum of three rounds is conducted and opinions are unified to the highest degree possible. Eighty (80) percent agreement is considered a consensus. If consensus cannot be reached by this method, the panel is convened and group consensus techniques are utilized. The strengths and weaknesses of each test or procedure are discussed and consensus reached whenever possible.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Criteria developed by the Expert Panels are reviewed by the American College of Radiology (ACR) Committee on Appropriateness Criteria and the Chair of the ACR Board of Chancellors.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

ACR Appropriateness Criteria™

Clinical Condition: Evaluation of Crohn's Disease

Variant 1: Adult; initial presentation (abdominal pain, fever, or diarrhea); Crohn's disease suspected.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Colon		

Radiologic Exam Procedure	Appropriateness Rating	Comments
Air contrast barium enema	8	
Colonoscopy	8	
Single contrast barium enema	4	
Water soluble contrast enema	2	
Small Bowel		
Small bowel follow-through with compression	8	
Peroral pneumocolon	6	Useful adjunct when other tests do not give adequate information.
Enteroclysis	4	
Plain X-ray		
Supine and upright abdomen	6	
Supine abdomen	4	
CT		
Contrast-enhanced CT of abdomen and pelvis (either helical or incremental)	6	
Noncontrast CT of abdomen and pelvis (no IV, but oral contrast)	4	
Ultrasound		
Abdominal with graded compression	4	
Pelvic and endovaginal	4	
Color Doppler sonogram	4	
Nuclear Medicine		

Radiologic Exam Procedure	Appropriateness Rating	Comments
Tc-HMPAO WBC scan	4	
Indium-labeled WBC scan	4	
MRI		
MRI of abdomen and pelvis (+/- Gd enhancement)	4	May be useful when CT cannot be done or IV contrast not given.
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Abbreviations: CT, computed tomography; IV, intravenous; Tc-HMPAO, technetium hexamethyl propylene amine oxime; WBC, white blood cell; MRI, magnetic resonance imaging.

Variant 2: Initial presentation of a child (3-16 years old); Crohn's disease suspected.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Colon		
Air contrast barium enema	8	
Colonoscopy	8	
Single contrast barium enema	4	
Water soluble contrast enema	2	
Small Bowel		
Small bowel follow-through with compression	8	
Peroral pneumocolon	6	Useful adjunct when other tests do not give adequate information.
Enteroclysis	4	
Plain X-ray		

Radiologic Exam Procedure	Appropriateness Rating	Comments
Supine and upright abdomen	6	
Supine abdomen	4	
Ultrasound		
Abdominal with graded compression	6	
Color Doppler sonogram	6	
Pelvic and endovaginal	2	
CT		
Contrast-enhanced CT of abdomen and pelvis (either helical or incremental)	6	
Noncontrast CT of abdomen and pelvis (no IV, but oral contrast)	4	
Nuclear Medicine		
Tc-HMPAO WBC scan	4	
Indium-labeled WBC scan	2	
MRI		
MRI of abdomen and pelvis (+/- Gd enhancement)	2	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Variant 3: Adult with known Crohn's disease and fever, increasing pain, leukocytosis, etc.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Plain X-ray		

Radiologic Exam Procedure	Appropriateness Rating	Comments
Supine and upright abdomen	8	
Supine abdomen	4	
CT		
Contrast-enhanced CT of abdomen and pelvis (either helical or incremental)	8	
Noncontrast CT of abdomen and pelvis (no IV, but oral contrast)	4	Probably not indicated unless that is all that can be done.
Ultrasound		
Abdominal with graded compression	6	
Pelvic and endovaginal	6	
Color Doppler sonogram	6	
Small Bowel		
Small bowel follow-through with compression	6	
Peroral pneumocolon	6	Useful adjunct when other tests do not give adequate information.
Enteroclysis	4	
Nuclear Medicine		
Tc-HMPAO WBC scan	6	
Indium-labeled WBC scan	4	Unless HMPAO not available.
Colon		
Water soluble contrast enema	4	
Single contrast barium enema	4	

Radiologic Exam Procedure	Appropriateness Rating	Comments
Air contrast barium enema	4	
Colonoscopy	4	
MRI		
MRI of abdomen and pelvis (+/- Gd enhancement)	4	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Abbreviations: CT, computed tomography; IV, intravenous; Tc-HMPAO, technetium hexamethyl propylene amine oxime; WBC, white blood cell; MRI, magnetic resonance imaging.

Variant 4: Child with known Crohn's disease and fever, increasing pain, leukocytosis, etc.

Radiologic Exam Procedure	Appropriateness Rating	Comments
CT		
Contrast-enhanced CT of abdomen and pelvis (either helical or incremental)	8	
Noncontrast CT of abdomen and pelvis (no IV, but oral contrast)	4	
Plain X-ray		
Supine and upright abdomen	6	
Supine abdomen	4	
Small Bowel		
Small bowel follow-through with compression	6	

Radiologic Exam Procedure	Appropriateness Rating	Comments
Peroral pneumocolon	6	Useful adjunct when other tests do not give adequate information.
Enteroclysis	4	
Ultrasound		
Abdominal with graded compression	6	
Color Doppler sonogram	6	
Pelvic and endovaginal	4	
Nuclear Medicine		
Tc-HMPAO WBC scan	6	
Indium-labeled WBC scan	4	
Colon		
Water soluble contrast enema	4	
Single contrast barium enema	4	
Air contrast barium enema	4	
Colonoscopy	4	
MRI		
MRI of abdomen and pelvis (+/- Gd enhancement)	4	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Variant 5: Adult with known Crohn's disease; stable, mild symptoms; periodic surveillance.

Radiologic Exam Procedure	Appropriateness Rating	Comments

Radiologic Exam Procedure	Appropriateness Rating	Comments
Small Bowel		
Small bowel follow-through with compression	6	
Peroral pneumocolon	6	Useful adjunct when other tests do not give adequate information.
Enteroclysis	4	
Colon		
Air contrast barium enema	6	
Colonoscopy	6	
Water soluble contrast enema	2	
Single contrast barium enema	2	
CT		
Contrast-enhanced CT of abdomen and pelvis (either helical or incremental)	4	
Noncontrast CT of abdomen and pelvis (no IV, but oral contrast)	2	
Plain X-ray		
Supine abdomen	2	
Supine and upright abdomen	2	
Ultrasound		
Abdominal with graded compression	2	
Pelvic and endovaginal	2	
Color Doppler sonogram	2	

Radiologic Exam Procedure	Appropriateness Rating	Comments
Nuclear Medicine		
Tc-HMPAO WBC scan	2	
Indium-labeled WBC scan	2	
MRI		
MRI of abdomen and pelvis (+/- Gd enhancement)	2	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Variant 6: Child with known Crohn's disease; stable, mild symptoms; periodic surveillance.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Small Bowel		
Small bowel follow-through with compression	6	
Peroral pneumocolon	6	Useful adjunct when other tests do not give adequate information.
Enteroclysis	4	
Colon		
Air contrast barium enema	4	
Colonoscopy	4	
Water soluble contrast enema	2	
Single contrast barium enema	2	
Plain X-ray		
Supine abdomen	2	

Radiologic Exam Procedure	Appropriateness Rating	Comments
Supine and upright abdomen	2	
Ultrasound		
Abdominal with graded compression	2	
Pelvic and endovaginal	2	
Color Doppler sonogram	2	
CT		
Contrast-enhanced CT of abdomen and pelvis (either helical or incremental)	2	
Noncontrast CT of abdomen and pelvis (no IV, but oral contrast)	2	
Nuclear Medicine		
Tc-HMPAO WBC scan	2	
Indium-labeled WBC scan	2	
MRI		
MRI of abdomen and pelvis (+/- Gd enhancement)	2	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Abbreviations: CT, computed tomography; IV, intravenous; Tc-HMPAO, technetium hexamethyl propylene amine oxime; WBC, white blood cell; MRI, magnetic resonance imaging.

Excerpted by the National Guideline Clearinghouse (NGC)

Role of Radiology

The primary role of the radiologist during evaluation at initial presentation of inflammatory bowel disease (IBD) is to detect the disease and its anatomic distribution, and to make the correct diagnosis, distinguishing it from other causes of inflammation of the gut.

Radiology has played a smaller role in the long-term surveillance of patients with known Crohn's disease (CD), with serial studies over time, because there is a poor correlation between clinical disease activity and the radiographic changes on barium studies. Moreover, most studies indicate that Crohn's disease does not progress longitudinally over time, in the absence of surgery, to involve previously normal areas of the gut. However, new modalities, such as measurement of superior mesenteric artery blood flow with Doppler ultrasound, and technetium hexamethyl propylene amine oxime (tc-HMPAO)-labeled white blood cell (WBC) nuclear scans, have shown a strong correlation with disease activity, and they may assist clinicians assessing patients with known Crohn's disease.

Radiology also plays an important role in evaluating the various complications of this chronic inflammatory disease, including obstruction, fistula formation, and abscess, as well as in assessing patients with known Crohn's disease who present with acute exacerbation of symptoms.

Initial Presentation

Plain films of the abdomen. Plain films often depict abnormalities in patients with IBD, and some authors advocate their routine use. Findings include mural thickening and dilatation; mucosal abnormalities of the small bowel and colon; and abnormal distribution of feces, with areas of colonic involvement devoid of fecal material. However, a false positive rate of 16%-20%, and a low positive predictive value of a normal film (62%), make plain radiography a poor screening test in patients at initial presentation: negative films cannot preclude further studies, and positive findings would also lead to other radiological procedures to more accurately characterize the type of IBD and to map its anatomic distribution in the gut. For these reasons, plain films are not essential when the initial presentation is typical for IBD and is not severe.

Barium studies of the GI tract. Despite the advent of newer imaging techniques and increasing use and availability of endoscopy, barium studies remain the primary method of diagnosis and evaluation of patients with Crohn's disease.

The small bowel can be evaluated by either conventional small bowel follow-through (SBFT) or enteroclysis, and each has its proponents. Each technique is quite accurate in detecting small bowel involvement when performed correctly [89%-97% for conventional SBFT and 83%-100% for enteroclysis], and the greater accuracy of enteroclysis in other conditions (e.g., detecting small bowel neoplasms and Meckel's diverticula) is not as accepted in the evaluation of IBD. While enteroclysis has a shorter overall examination time, the peroral SBFT requires less total room time and radiologist time and, substantially less radiation exposure. It also has fewer side effects and greater patient acceptance. For these reasons, detailed SBFT, with frequent fluoroscopy using graded compression, is the best means of evaluating the small bowel, particularly in younger patients. Enteroclysis is usually reserved for problematic cases.

The peroral pneumocolon is a useful adjunct to SBFT or enteroclysis. Once the terminal ileum has been opacified, air is instilled through the rectum to obtain a double contrast examination of the distal small bowel (or the ascending colon, or both). Often this technique will result in better distention of the terminal ileum, and in better mucosal detail. It is particularly useful when the appearance of the ileum is indeterminate by SBFT or enteroclysis alone. One milligram of glucagon, given intravenously, facilitates reflux of air retrograde through the ileocecal valve, with a failure rate of about 10%.

Evaluation of the colon in patients suspected of having IBD often first entails proctoscopy or flexible proctosigmoidoscopy, for several reasons. Endoscopy serves to exclude parasitic or pyogenic infectious causes of IBD, for which subsequent barium studies are often not warranted; it also permits biopsy of mucosal abnormalities, which is important for accurate diagnosis. Endoscopy has proven superior to solid column barium enema (SCBE) and also to air contrast barium enema (ACBE) in the detection of early inflammatory bowel disease. However, since Crohn's disease may involve any part of the colon, the entire colon must be evaluated. Presently this is usually done by ACBE, since its superiority over SCBE in detecting mucosal abnormalities of IBD have been well documented in both adults and children. In some centers ACBE is being supplanted by colonoscopy with photo-documentation and multiple biopsies, but colonoscopy is more expensive and invasive than ACBE and also has difficulty in accurately localizing strictures and other lesions, since there are no endoscopic landmarks between the rectosigmoid and the ileocecal valve.

Ultrasound. Numerous ultrasound (US) studies have documented the ability of transabdominal ultrasound to demonstrate the presence of Crohn's disease. Ultrasound findings of Crohn's disease include bowel wall thickening (4-5 mm or greater), producing the target sign when seen in cross-section, and reduced or absent peristalsis in affected loops.

More recently, proponents have argued that ultrasound could replace SBFT in the initial evaluation of patients suspected to have Crohn's disease or in the surveillance of patients (particularly children) with Crohn's disease, because of its acceptable sensitivity and the advantage of no radiation exposure. In the one prospective comparison of ultrasound and barium studies, which used the barium study as the gold standard, in the initial evaluation of suspected Crohn's disease, the sensitivity of ultrasound was 75% and the specificity was 97%. The authors describe a sharp learning curve, with sensitivity increasing to 87% later in the study. This finding emphasizes the frequently made point that ultrasound is quite operator-dependent, perhaps more so than other modalities. Nevertheless, this data points to the potential use of ultrasound as the initial modality in patients suspected of having Crohn's disease; patients with negative ultrasound would not go on to other procedures such as SBFT.

Nuclear medicine. Nuclear medicine plays little role in the initial evaluation of patients suspected of having Crohn's disease. Radionuclide studies are not as effective as SBFT and ACBE in assessing disease extent and they lack the anatomic detail provided by those studies.

Computed tomography. Like ultrasound, computed tomography (CT) is capable of diagnosing Crohn's disease in both adults and children. Findings of Crohn's

disease on CT include homogeneously enhancing thickened bowel wall; "skip" areas, with normal bowel between diseased segments; separation of bowel loops by (in order of decreasing frequency) fibrofatty mesenteric infiltration, interloop or mesenteric abscess, mesenteric phlegmon or adenopathy, or thickened walls of adjacent bowel loops; inflammatory mesenteric lymphadenopathy (nodes 3 to 8 mm in diameter); fistulae and sinus tracts; and sacroiliitis.

However, CT is not capable of diagnosing Crohn's disease in its earliest stages, when the disease is limited to the mucosa. For this reason, it plays little role in the routine initial evaluation of patients suspected to have Crohn's disease, unless advanced disease or an extraintestinal complication is suspected clinically.

Magnetic resonance imaging. Magnetic resonance imaging (MRI) currently plays no role in the initial evaluation of patients suspected of having Crohn's disease at most institutions.

Patients with Known Crohn's Disease Presenting with Acute Exacerbation or Symptoms, or with Suspected Complications

Crohn's disease is a chronic disease, with frequent relapses and superimposed complications. These include bowel obstruction due to strictures; intra-abdominal or pelvic abscess; development of fistulae to skin, bladder, vagina, etc.; and toxic megacolon in patients with colonic CD.

Plain films of the abdomen. In patients with fulminant symptoms, plain films are essential, because they can often detect the presence of bowel obstruction, perforation, or toxic colon distention, directing further treatment quickly.

Barium studies of the GI tract. For small bowel evaluation, the small bowel follow-through (SBFT) has remained the "gold standard" against which other studies are compared. Fistulae and strictures can be documented and their location made clear for the surgeon. However, the activity of Crohn's disease has a poor correlation with the morphological abnormalities shown on SBFT, and many proponents of leucoscintigraphy now advocate this modality to assess patients with acute exacerbations, but not suspected of abdominal abscess, particularly in children (see below).

In patients who are acutely ill, with peritoneal signs or acute diarrhea, barium studies are not indicated because of the risk of perforation; in this instance, other tests are more appropriate (see below).

For evaluation of the colon in patients with acute exacerbations, colonoscopy has supplanted solid column barium enema (SCBE) and air contrast barium enema (ACBE), but ACBE is a satisfactory alternative, provided symptoms aren't severe, and the risk of perforation is low. Otherwise, either no study or a water-soluble contrast enema is the procedure of choice.

In patients with Crohn's disease who present with pain, a palpable mass, or fever and in whom an abscess is suspected, barium studies have little role. While they may demonstrate a fistulous communication with an abscess, a negative study

doesn't preclude other studies, and a positive one will likewise lead to other imaging, usually to see if percutaneous drainage is possible, and if so, to guide it.

Ultrasound. Several authors recommend ultrasound over barium studies in patients with acute exacerbations, or with suspected complications. In the one prospective study of ultrasound and barium examinations in adults with known Crohn's disease, ultrasound correctly identified 14 of 17 cases with recurrent disease, for a sensitivity of 82%; however specificity was only 57%. Six of 14 positive studies were false-positive. It is now well accepted that Crohn's disease can be identified by ultrasound, but its routine use as the initial diagnostic modality in patients newly suspected of having Crohn's disease is not.

Once the diagnosis of Crohn's disease has been established, assessment of disease activity is a major clinical problem: undertreatment may lead to worsening symptoms and the development of complications, and overtreatment with corticosteroids and immunosuppressant drugs may have equally undesirable consequences. While the degree of bowel wall thickening detected by ultrasound does not correlate well with disease activity, Doppler ultrasound measurement of superior mesenteric artery blood flow has been shown recently to correlate strongly with other currently accepted parameters of disease activity, and may be of value in the clinical assessment of these patients.

In patients with severe relapses of Crohn's disease and responding poorly to conventional treatment with corticosteroids and/or immunosuppressant drugs, ultrasound has not performed as well as CT, with a higher false-negative rate.

Nuclear medicine. Numerous articles support the use of technetium hexamethyl propylene amine oxime-labeled white blood cells, with single photon emission computed tomography (SPECT) imaging, in assessing disease activity. These advocates propose that, once the histological diagnosis of Crohn's disease has been established, the disease activity can be reliably assessed by this technique. Its advantages over barium studies include the examination of both large and small bowel in one encounter, lower radiation exposure (important in younger patients, especially children, who will have multiple studies over their lifetime), and higher patient acceptance. In addition, technetium hexamethyl propylene amine oxime-labeled leucoscintigraphy can accurately distinguish Crohn's disease from ulcerative colitis in a large proportion of patients, and may actually exceed conventional radiology in this regard.

This technique has largely supplanted the earlier indium-labeled leukocyte scans for this purpose, because of a substantially lower radiation dose, better radionuclide availability, abbreviated scanning time, and superior image quality.

While some advocates of leucoscintigraphy have argued that this technique compares favorably with CT or ultrasound in diagnosing extraintestinal complications of Crohn's disease, such as abscess, this view is not widely accepted, and nuclear medicine plays little role in patients with known Crohn's disease who present with signs and symptoms of abscess, fistula formation, or bowel obstruction.

Computed tomography. Currently, computed tomography (CT) is the initial imaging technique of choice in this clinical situation, for both adults and children.

In one large study of 80 patients, CT detected unsuspected findings that led to a change of medical or surgical management in 28% of patients. CT can most often differentiate the various causes of palpable abdominal mass (fibrofatty proliferation, abscess, thickened bowel wall, phlegmon, or neoplasm), and often can depict fistulas and sinus tracts.

Magnetic resonance imaging. Although enthusiasts continue to search for scan sequences, oral magnetic resonance imaging (MRI) contrast agents, and other means to improve MRI in the evaluation of gastrointestinal diseases, MRI currently cannot match CT in the evaluation of complications of Crohn's disease. However, MRI is useful when ionizing radiation is contraindicated, and it has been used successfully in pregnant women.

MRI is also useful in the evaluation of perianal complications of Crohn's disease, and it competes with endorectal ultrasound and CT in this small subset of patients with Crohn's disease.

Angiography and interventional radiology. The primary role of interventional radiology is in the percutaneous drainage of abscesses complicating Crohn's disease. Numerous studies have documented the effective use of this technique, which is now the procedure of choice, often obviating the need for surgical resection.

CLINICAL ALGORITHM(S)

Algorithms were not developed from criteria guidelines.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The recommendations are based on analysis of the current literature and expert panel consensus.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Selection of appropriate radiologic imaging procedures for evaluation of Crohn's disease (CD)

POTENTIAL HARMS

In patients who are acutely ill, with peritoneal signs or acute diarrhea, barium studies are not indicated because of the risk of perforation.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

An American College of Radiology (ACR) Committee on Appropriateness Criteria and its expert panels have developed criteria for determining appropriate imaging examinations for diagnosis and treatment of specified medical condition(s). These criteria are intended to guide radiologists, radiation oncologists, and referring physicians in making decisions regarding radiologic imaging and treatment. Generally, the complexity and severity of a patient's clinical condition should dictate the selection of appropriate imaging procedures or treatments. Only those exams generally used for evaluation of the patient's condition are ranked. Other imaging studies necessary to evaluate other co-existent diseases or other medical consequences of this condition are not considered in this document. The availability of equipment or personnel may influence the selection of appropriate imaging procedures or treatments. Imaging techniques classified as investigational by the U.S. Food and Drug Administration (FDA) have not been considered in developing these criteria; however, study of new equipment and applications should be encouraged. The ultimate decision regarding the appropriateness of any specific radiologic examination or treatment must be made by the referring physician and radiologist in light of all the circumstances presented in an individual examination.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

American College of Radiology (ACR), Expert Panel on Gastrointestinal Imaging. Imaging recommendations for patients with Crohn's disease. Reston (VA): American College of Radiology (ACR); 2001. 11 p. (ACR appropriateness criteria). [32 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1998 (revised 2001)

GUIDELINE DEVELOPER(S)

American College of Radiology - Medical Specialty Society

SOURCE(S) OF FUNDING

The American College of Radiology (ACR) provided the funding and the resources for these ACR Appropriateness Criteria.™

GUIDELINE COMMITTEE

ACR Appropriateness Criteria™ Committee, Expert Panel on Gastrointestinal Imaging

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Panel Members: Reiley Kidd, MD; Duane G. Mezwa, MD; Seth N. Glick, MD; Philip W. Ralls, MD; Robert L. Bree, MD; Jay P. Heiken, MD; James E. Huprich, MD; Marc S. Levine, MD; Michelle L. Robbin, MD; Pablo R. Ros, MD, MPH; William P. Shuman, MD; Frederick Leslie Greene, MD; Loren A. Laine, MD.

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline. It updates a previous version: ACR Appropriateness Criteria™ for imaging recommendations for patients with Crohn's disease. Radiology 2000 Jun;215(Suppl):181-92.

The ACR Appropriateness Criteria™ are reviewed every five years, if not sooner, depending on the introduction of new and highly significant scientific evidence. The next review date for this topic is 2006.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the American College of Radiology (ACR) Web site.

Print copies: Available from the American College of Radiology, 1891 Preston White Drive, Reston, VA 20191. Telephone: (703) 648-8900.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- American College of Radiology ACR Appropriateness Criteria™ introduction. Reston (VA): American College of Radiology; 6 p. Available in Portable Document Format (PDF) from the ACR Web site.

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on March 19, 2001. The information was verified by the guideline developer on March 29, 2001. This summary was updated by ECRI on July 31, 2002. The updated information was verified by the guideline developer on October 1, 2002.

COPYRIGHT STATEMENT

Date Modified: 5/10/2004